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RUNNING HEAD: Predicting the vote

Predicting the vote through implicit and explicit attitudes: A field research

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Abstract

Using the data collected by Itanes on a sample of the Italian population, representative according to the main socio-demographic variables, we analyzed the relations between voting intention, explicit and implicit political attitudes, and voting behavior. Participants (N = 1,377) were interviewed twice, both before and after the 2006 Italian National Election. The implicit attitudes (measured using the IAT) were substantially as effective as voting intention, and more effective than the explicit attitudes towards the main Italian political leaders, in forecasting the Election official results. When used to predict participants' voting behavior, the IAT added a significant, although slight, power to voting intention and explicit attitude. Inconsistency between explicit and implicit attitudes exerted a negative influence on the probability of having decided one's voting behavior in the pre-electoral poll; however, among undecided participants, it did not significantly influence the probability of delaying one's voting decision and that of actually casting a valid vote. Limits and possible developments of this research are discussed.

Keywords

Implicit Attitudes; Implicit Association Test; Voting Behavior; Forecast; Electoral polls

> "Have I missed the mark, or, like true archer, do I strike my quarry? Or am I prophet of lies, a babbler from door to door?" (*Cassandra. Aeschylus, Agamemnon*)

The art of divination has always fascinated humanity, but it rarely heralds honor and glory. Greek mythology condemned Cassandra to utter true prophecies and go unheeded. Nowadays, electoral pollsters do not often have a much better fate: Indeed, they are paid much more attention than poor Cassandra was, but the possibility of foretelling the future in such an accurate way seems to be denied them. For example, in the 2006 Italian National Election a few weeks before the vote most research institutes predicted that the left-wing coalition would have won the election with an advantage of 4-5%. The left-wing coalition did in fact win, but with a much narrower margin (0.1% if computed taking into consideration the small parties which did not converge into one of the two coalitions, which obtained the 0.3% of the valid votes, and 0.2% if excluding them from the analysis).

Why are election predictions sometimes wrong? The most used way of predicting electoral results is constituted by surveys: A representative sample is extracted from the population of potential voters and asked which candidate they would vote for, if the election were being held at that time. Results are then generalized to the whole population and projected to Election Day. Assuming that a sound sampling method is applied, and the survey is conducted relatively near the Election Day, this strategy ought to lead to highly accurate predictions. We shall endeavor to explain why often it does not.

First, some of the interviewees, who could be classified as reticent, refuse to take part in opinion polls and to express their voting intention *tout court*. Then, there are individuals who express a clear political preference in the pre-electoral survey, but subsequently behave

differently from their stated voting intention. These are the ”volatiles”, or those who prefer to give an insincere answer when asked about their voting intention, often because they perceive a climate of opinion in the country that is contrary to their position (Noelle-Neumann, 1993). Last but not least, there are the “undecided” voters, who describe themselves as hypothetically disposed to tell us their voting intention, but maintain that they haven’t formed a decision yet. Two different kinds of voters are probably included in this category: those who have already developed an electoral choice but conceal it behind a curtain of indecision, and those who really are in doubt as to what behavior they should enact.

Pre-electoral surveys do not always indicate clearly the percentage of reticent and undecided respondents, at least in Italy, although this is usually far from negligible (Gasperoni & Callegaro, 2008). As concerns the 2006 National Election, Sani (2006) showed that 13% of Italians made up their mind during the last week before the election, and 9.5% did so while in the polling booth. These percentages are considerably higher than the difference between the two coalitions indicated by pre-electoral surveys: If unevenly distributed between the two coalitions, undecided voters could have even reversed the results of the vote!

How can researchers overcome this problem? A first strategy consists in neglecting the presence of undecided and reticent voters, assuming that they will show the same pattern of voting behaviors as those who express a clear orientation in the pre-electoral survey. This solution may just seem simple but it is in fact too simplistic, because empirical data clearly confute the postulate that the behaviors of the two types of electors are the same (see for example Durand, Blais, & Larochelle, 2004). A second, and yet unsatisfactory, strategy is to allocate undecided respondents evenly between the candidates, under the questionable assumption that this proportion of the electorate will vote randomly (Visser, Krosnick,

Marquette, & Curtin, 2000). A third possibility is more sophisticated, and consists of correcting the forecasts on the basis of the available information on the various segments of the electorate to which the undecided and reticent voters belong. However, this strategy is unsatisfactory as well. Corrections can indeed be based on voting behaviors in previous elections, but important changes may have subsequently occurred in the political or electoral framework. Alternatively, corrections can be based on the voting intentions of other individuals with similar socio-demographic characteristics to those who did not express their voting intention, but these are not conclusive either, because of the risks of overlooking aspects which are unknown to the researcher, but relevant for the choice. A fourth possibility consists of collecting information during the pre-electoral survey, which will enable reconstruction of the cognitive representations and the attitudes of the interviewees regarding the political system and the political objects. This information will allow a forecast to be made about the voting decision that will be developed or about the decision taken by participants, even by people who did not declare it.

In line with the strategy to improve electoral forecasts through the use of indirect indicators of political attitudes and opinions, use of the tools recently developed within the social cognitive paradigm may be proposed. They consist of various techniques based on the speed and accuracy with which respondents perform simple tasks, enabling inferences on the structure of their attitudes to be made (see, *inter alia*, Fazio & Olson, 2003; Maass, Castelli, & Arcuri, 2000; Zogmaister & Castelli, 2006). Among these measures, the Implicit Association Test (IAT, Greenwald, McGhee, & Schwartz,1998) proved to be a particularly sensitive and versatile tool, and was successfully applied in many areas of research, among which the measurement of political attitudes (Friese, Bluemke, & Wänke, 2007; Knutson, Wood, Spampinato, & Grafman, 2006; Nosek, Banaji, & Greenwald, 2002; see also Greenwald & Nosek, 2008).

In Italy the association between the IAT and the voting behavior was recently studied by Arcuri, Castelli, Galdi, Zogmaister, and Amadori (2008). Four weeks before the 2001 Italian National Election, Arcuri and colleagues administered the IAT to a sample of voters who had clearly sided with one of the opposing parties, in order to measure their implicit preference for the leaders of the two political coalitions. After the election, the voting behavior of these respondents was registered, and a very high level of coherence emerged between their electoral behavior and previously assessed implicit attitudes. In a second study, Arcuri and co-workers, before the 2005 Italian local elections, administered the IAT to a sample of voters who had not yet formed a voting intention. They found that the IAT index of political preference was a good predictor of subsequent voting behavior and for this reason they suggested that the IAT could be a useful tool to infer the electoral preferences and the implicit attitudes of those describing themselves as “undecided” in pre-electoral surveys.

A further step in the agenda of researchers into implicit aspects in electoral choices consists in investigating the interplay between implicit and explicit attitudes in the prediction of the voting behavior. It is necessary to take such step both from the applied perspective—in order to investigate whether the IAT does actually improve the correctness of voting forecasts when used alone and/or together with the direct questions traditionally used by opinion pollsters—and from the theoretical perspective, in order to better understand the relations between implicit attitudes, explicit attitudes, and electoral behavior. The question here is not only *whether* measures of implicit attitudes provide additional predictive power, when used together with measures of explicit attitudes, but also *what* additional information they may provide.

Models of prediction of political behavior

Three main models may be used to predict the association between explicit and implicit measures of political attitudes on the one hand, and political behaviors on the other hand: the additive, the double-dissociation, and the interaction model (see Perugini, 2005).

According to the *additive model*, both the explicit and the implicit measures of political preference should contribute to the prediction of voting behavior. Hence, implicit measures should add incremental validity to explicit ones and vice versa, and more valid electoral forecasts should result when both types of measures are used together. On the contrary, the *double-dissociation model* posits that implicit attitudes uniquely predict spontaneous behaviors and explicit attitudes uniquely predict deliberative behaviors; therefore, as voting behavior has presumably a strong controlled component, based on such model we should expect that, as long as we have a valid and reliable measure of explicit attitudes, adding implicit measures to explicit ones should not improve the prediction of the content of the voting behavior. Finally, according to the *interaction model*, the relationship between implicit and explicit measures of political attitudes on the one hand, and voting behavior on the other hand, should be influenced by the attitudes' interplay. In particular, when they are congruent they should act synergistically and facilitate voting behavior, while their incongruence should hinder it.

In the present study we tested the three models of prediction outlined above in relation to two different aspects of electoral behavior: casting a vote as opposed to abstain from vote, and choosing the left- vs. the right-wing coalition.

Goals and hypotheses

Our research had one general goal, to test the external validity of the IAT with a representative sample of the population of voters, face-to-face interviewed. This goal was relevant not only from an applicative point of view, particularly for researchers interested in voting polls, but also for social and political psychologists themselves, as it concerned the

more general question of generalizability of the use of the IAT outside convenience samples. We expected the IAT to show a significant relation with our participants' voting behavior, like in Arcuri et al.'s (2008) research. This was the HP1 of our research.

Besides this general goal, we had two specific goals. First, we aimed at studying if using the IAT in a pre-electoral poll could improve the predictive power of electoral forecasts. As, based on the literature we could not develop precise hypotheses, we used an exploratory approach, comparing the actual results of the 2006 Italian National Election with those we could forecast using the IAT, voting intention, and the explicit judgments expressed on the Italian main political leaders. The IAT may only be considered as a useful tool for election forecasts if it does achieve a better performance, when compared with voting intention and explicit political attitudes, in predicting the election outcomes. An accurate evaluation of its efficacy is essential because its administration to a large sample of respondents is highly expensive and time consuming. Administering it does indeed involve face-to-face interviews and it therefore requires a network of interviewers to be trained and disseminated throughout the territory. Synchronization of the interactions between interviewers and interviewees is also required. Thus, even performing the Brief IAT, recently proposed by Sriram & Greenwald (submitted), would result much more expensive than assessing the standard explicit variables assessed in pre-electoral polls.[1]

Our second goal was to shed some new light on the interplay of implicit and explicit psychological processes underlying voting behavior. Recent reseach has indeed shown that political decisions can be based on both explicit and implicit attitudes, with an interplay between the two (Galdi, Arcuri, & Gawronski, 2008). Therefore, we specifically tested and

[1] It may be argued that a wide sample of participants could be easily contacted through the world-wide-web. Nosek, Banaji, and Greenwald (2002) did indeed reach a very large sample of American respondents through a web-based IAT administration. But empirical evidence clearly emphasizes that distributions of variables collected through web-research are systematically distorted, as compared to those emerging from representative samples (Schonlau et al., 2004). Even worse, the *relationships* between variables can be distorted by web sampling (Best & Krueger, 2002). Therefore, face-to-face administered IATs seem to be essential for accurate forecasts.

contrasted the additive, the dissociative, and the interaction model outlined above with reference to two distinct aspects of voting behavior: enacting the behavior (i.e., going to the ballot vs. abstaining from the vote) and the content of the vote casted.

The three above-mentioned models may be taken into consideration (Perugini, 2005). If voting behavior is mostly based on controlled processes, according to the dissociative model only explicit attitudes should predict it. Thus, the IAT shoud add no predictive power to models predicting the content of the voting behavior using explicit attitudes (HP2a). If, on the contrary, we assume that both controlled and automatic processes influence voting behavior, the additive model of prediction should adequately describe the processes leading to the electoral choice. According to such model, the IAT should add predictive power to the models predicting the content of the voting behavior using explicit attitudes (HP2b). This would be expected both if we assume that implicit and explicit measures tap into the same unitary attitudinal construct (e.g., Fazio, 2007), and hence the former may capture specific parts of true variance in the attitude left unexplained by the latter, and also from the point of view a dual-attitude perspective, according to which social behavior is controlled by two different attitudinal systems (e.g., the reflective and the impulsive system, Strack & Deutsch, 2004; the fast and the slow learning system, Smith & Decoster, 2000; explicit and implicit attitudes, Wilson, Lindsey, & Schooler, 2000).

The third model we took into consideration was the interactive model. We reasoned that there is no a priori reason to expect that interactive effects between explicit and implicit attitudes influence the content of the casted ballot, and therefore we hypothesized that the interactive model would not fit the data, with regard to the prediction of the content of the vote. We translated this prediction into the following hypothesis: The interaction between our participants' explicit and implicit political attitudes should not influence their actual voting behavior (HP3).

However, as concerns the other aspect of voting behavior we took into consideration, namely voting versus abstaining from the vote, we expected that congruence between explicit and implicit attitudes should exert a synergistic and facilitatory effect on decision making. If this is the case, when compared with respondents with incongruent explicit and implicit attitudes, those with congruent attitudes should show a higher probability of having made up their decision at the moment of the pre-electoral interview, i.e. about one month before the Election (HP4). Moreover, for those who have not yet made up their decision at the moment of the pre-electoral interview, i.e. for our undecided voters, the synergistic effect of congruence between explicit and implicit attitudes should result in (a) higher probability to actually cast a ballot (HP5), and (b) a faster decision making (HP6). On the contrary, explicit attitudes and—when available—voting intention—should not influence these three variables. Table 1 summarizes our hypotheses.

Method

As it has traditionally done since the beginning of the 1990s, the Itanes group, to which the first author of this article belongs,[2] analyzed the voting behavior of Italians in the 2006 National Election. A panel composed of 1,377 people was interviewed. Participants were interviewed face-to face twice, both in Computer-Assisted Personal Interviews. The first interview was performed about a month before the election, and the second one was performed just after it. At the end of the pre-electoral interview, participants were asked to complete the IAT.

The IAT is a computer administered task, in which respondents perform a series of categorization trials. In each trial, a stimulus appears in the center of the screen. In an IAT aimed at investigating the preferential attitude toward one of two political coalitions, for example, the nouns of the parties belonging to the two opposing coalitions or of their leaders

[2] Itanes stands for ITAlian National Election Studies. Readers interested in this research program details should visit the website www.itanes.org

could be presented together with words with a clear positive or negative valence (e.g., love, happiness, hate, sickness). Each time one of these stimuli appears on the monitor, participants are requested to classify it by pressing one of two keys, which are situated on the right and on the left of the keyboard. Hence, four categories, but only two response keys, are presented and each response key must be used for two of the categories. The response has to be given as quickly and accurately as possible.

IAT trials are presented in blocks, and the association between response keys and stimulus categories is different in each block. More specifically, two of the blocks of trials are critical, whereas the others are administered for practice. In one of the critical blocks, participants are requested to press the same key for nouns of parties or leaders belonging to the left-wing coalition and words with positive valence. The other key has to be pressed for nouns of parties or leaders belonging to the right-wing coalition and words with negative valence. In the other critical block, one key is used to categorize parties or leaders belonging to the right-wing coalition and positive words, the other for parties or leaders of the left-wing coalition and negative words. These critical blocks are preceded by simple categorization blocks, to enable the respondent to learn how to react to the stimuli. The whole procedure therefore consists in five blocks of trials, in the sequence depicted in Table 2.

For the respondents who spontaneously prefer the left-wing, as compared to the right-wing, coalition, the block of trials which associates left-wing parties or leaders and positively valenced words in the answer key should be easier, as compared to the block in which the same parties or leaders are associated with negatively valenced words. They should therefore be faster and more accurate in the first critical block, as compared to the second one. The opposite result is expected from respondents who spontaneously prefer the right-wing coalition. As we shall see in greater detail in the description of the results of the present research, a differential index can be computed for each respondent, based on speed

and accuracy in critical blocks (Greenwald, Nosek, & Banaji, 2003). This index is considered to be an indicator of the attitude underlying the responses and its predictive validity was demonstrated with reference to various kinds of behaviors (see Greenwald, Poehlman, Uhlmann, & Banaji, in press).

A characteristic of the IAT, which is particularly important in relation to the prediction of the electoral behaviors of reticent and undecided voters, consists in the fact that the respondents are not asked any questions about their political attitudes. The latter are inferred on the basis of the speed and accuracy of their performance. Hence, these attitudes may emerge even without being expressed with consciousness or intentionality, and therefore the IAT seems to be an appropriate instrument for the investigation of the political preferences of people who would prefer not to declare they future voting behavior and of those describing themselves as undecided in pre-electoral surveys (see Arcuri et al., 2008, for a more detailed discussion on the use of the IAT for the investigation of political attitudes).

We built two IATs, differing in content. The first one, which we labeled “Parties-IAT”, was aimed at analyzing our participants’ implicit attitudes toward the main parties of the Unione, the left-wing coalition (i.e. Rifondazione Comunista, Democratici di Sinistra, Margherita, and Verdi) and of the CdL, the right-wing coalition (i.e. Forza Italia, Alleanza nazionale, Lega Nord, and UDC). The second one, which we labeled “Leaders-IAT”, analyzed our participants’ implicit attitudes toward the main leaders of the Unione (Romano Prodi, Piero Fassino, Francesco Rutelli, and Fausto Bertinotti) and of the CdL (Silvio Berlusconi, Gianfranco Fini, Pierferdinando Casini, and Umberto Bossi).

The tests were divided into five blocks of trials, as shown schematically in Table 2. Participants were asked to classify the names of the main parties belonging to the left-wing coalition and to the right-wing coalition, or of their main leaders, on the one hand, and four pleasant (caress, rainbow, love, and happy) and four unpleasant (rotten, death, vomit, and

stink) words on the other hand. Blocks number 1, 2, and 4 were practice blocks, aimed at helping participants learn the association between the computer keys and the answer categories. Blocks 3 and 5 were the critical ones: We used the performance in these blocks to infer our participants' implicit political attitude.

As suggested by Greenwald et al. (1998), we built two versions of the "Parties-IAT" and two versions of the "Leaders-IAT". In the version we labeled "Left-wing pleasant", in the third block the left-wing objects (parties or leaders) were associated to pleasant words and the right-wing objects (parties or leaders) were associated to unpleasant words, while in the fifth block we associated the right-wing objects (parties or leaders) to pleasant words and the left-wing objects (parties or leaders) to unpleasant words. On the contrary, in the "Right-wing positive" version, we associated the right-wing objects (parties or leaders) to pleasant words and the left-wing objects (parties or leaders) to unpleasant words in the third block, while in the fifth block the left-wing objects (parties or leaders) were associated to pleasant words and the right-wing objects (parties or leaders) were associated to unpleasant words. Thus, as a whole we built four versions of the IAT, combining two criteria: the nature of the test stimuli ("Parties-IAT" vs. "Leaders-IAT) and the order of presentation of the two critical blocks ("Left-wing positive" vs. "Right-wing positive"). The four versions of the test were randomly presented to our participants. As a whole, 1,231 people successfully completed the test.

Based on performance of participants in the IAT, we computed the *D* index (Greenwald, Nosek, & Banaji, 2003), a weighted index that uses the information about the number of errors as well as the information about the mean latency characterizing the critical tasks. To compute *D* we took four steps: (a) we substituted the latency of each wrong categorization with the average latency of the critical block to which the wrong answer belonged, adding a 600 ms penalty; (b) we computed the average latency for each critical

block; (c) we computed the difference between the average latency of the two critical blocks; and (d) we divided such difference by the standard deviation of the latencies of the two critical blocks. We coded the *D* scores in a direction that was favorable to the Unione, the winner of the election. Thus, more positive scores were indicative of a higher preference for the Unione, as compared to the Cdl.[3]

Besides the IAT, we used five other variables: (a) voting intention, expressed in the pre-electoral survey; we considered as reticent the participants who answered "I prefer not to answer this question", and as undecided the participants who declared they have not chosen how to cast their vote; among the participants who expressed their voting intention, we coded 0 the answers in favor of the right-wing coalition and 1 those in favor of the left-wing one; (b) a synthetic index expressing the explicit attitude toward the political leaders we used in the IAT, asked in the pre-electoral survey, computed as the difference between the mean judgment expressed on the left-wing leaders and the mean judgment expressed on the right-wing leaders; (c) the interaction between the explicit attitude and the IAT scores, computed after centering the two variables; (d) the post-electoral question asking participants to report when they took their decision on how to vote; and (e) voting behavior, asked in the post-electoral survey (we assigned 0 to the participants who declared they voted for the right-wing coalition and 1 for those who declared they voted for the left-wing one). Table 3 shows the proportion of participants who got a valid score for the critical variables we considered.

Results

Preliminary analyses showed that the *D* scores did not vary as a function of the kind of test stimuli ("Parties-IAT" vs. "Leaders-IAT"), $t(1229) = .631$, $p = .528$, $\eta^2 = .000$. Thus, in

[3] We performed parallel analyses using, instead of *D*, the index proposed by Greenwald et al. (1998), which takes into account the latency of the responses only. The results we obtained, available upon request, were almost identical to those we present.

the presentation of the results we will not take this design variable into consideration. However, we detected a slight effect of the order of presentation of the critical blocks ("Left-wing positive": M = .09, SD = .68; "Right-wing positive": M = -.03, SD = .71), $t(1229) = 3.071$, $p < .01$. This effect was negligible from the substantive point of view, η^2 = .006, and was significant because of the unusual sample size: Basically, it was shown that the effect of order on the *D* index was very modest. Nevertheless, we decided to take this order effect order into account in most of the subsequent analyses. Therefore, we computed a new *D,* taking three steps. First, we divided our sample into two sub-samples, based on the order of presentation of the critical blocks. Second, we standardized *D* in each of the sub-samples. Third, we merged the two *D*s thus obtained to compute a new *D,* free from the effect of the design variables. We labeled z*D* such new index.[4]

Did the IAT Significantly Correlate with Our Participants' Voting Behavior?

In order to pursue our general goal, we analyzed the point-biserial correlation between the IAT and the content of our participants' voting behavior. As shown in Table 4, consistent with our HP1, such correlation was strong. However, both in our whole sample and in our subsamples composed of the participants who actually cast a valid vote, the judgments and—above all—voting intention showed much stronger correlations with voting behavior than the IAT.

Was the IAT an Effective Predictor of the Election Results?

To pursue our first specific goal, we performed an unusual "*post-hoc* prediction" of the results of the 2006 Italian National Election, comparing the forecasts we could make using voting intention, explicit attitude, and implicit attitude with the official outcome of the political competition. To perform such analysis, as two coalitions were competing, we had to

[4] Besides z*D* we computed two more *D*s free from the effect exerted by the design variable. First, we took the same steps of the strategy we chose, but we centered, instead of standardizing, *D*. Second, we saved the residuals of a simple linear regression in which we used *D* as the dependent variable and our design dummy variable as the independent variable. The results we obtained, available upon request, were almost identical to those we present.

dichotomize the IAT scores and our synthetic index assessing participants' explicit attitude. Thus, in both cases an important assumption was necessary: to take a zero-point value, i.e. a value over which we assumed that the respondent preferred the left-wing coalition, and under which the right-wing one (for a discussion of this assumption see Blanton & Jaccard, 2006; Greenwald, Nosek, & Sriram, 2006).

IAT scores are relative scores of automatic preference for one of the two concepts; therefore, given the negligible effect of order on the scores and given that all prevalent parties/leaders were presented in the task, we assumed that the score zero represented absence of preference for the objects of the test, whereas positive scores represented implicit preference for Unione and negative scores represented implicit preference for the CdL. Therefore we dichotomized the IAT, counterposing respondents showing pro-left (above 0) vs. pro-right (below 0) scores. As concerns explicit judgments, it was reasonable to assume that participants gave the same meaning to the scale when they were evaluating the left-wing and the right-wing leaders. Like in the case of the IAT, we dichotomized this variable considering the respondents who in the interview expressed more favorable evaluations of the left-wing leaders (above 0 scorers) as explicitly preferring the Unione; on the contrary, we considered the participants who expressed more favorable evaluations for the right-wing leaders (below 0 scorers) as explicitly preferring the CdL.

Table 5 shows the comparison between the official results of the Italian 2006 National Election and the forecasts of such results we could make using voting intention, explicit attitudes towards the main Italian political leaders, and the IAT. As concerns the Election's official result, in the Table we present the valid votes for the two coalitions only, without taking into consideration the small parties which did not converge into one of the two coalitions (0.3% of the valid votes) and the quota of voters which did not express a valid vote (16.4% of the whole constituency). The same holds true as concerns our forecasts based on

voting intention, the explicit, and the implicit attitudes, which were respectively based on the 60.1%, the 87.8%, and on the 89.4% of our participants. The last row of the Table presents, for each of our prediction, the poll's *A* index (Martin, Traugott, & Kennedy, 2005).[5]

Generally speaking, the accuracy of our forecasts based on voting intention, explicit attitudes, and the IAT were similar to the average accuracy of the 73 published pre-election polls performed to forecast the 2006 Italian National Election, which was $A = .10$ (Callegaro & Gasperoni, 2008). None of our three predictions was significantly biased in favor of the left- or of the right-wing coalition, with $p < .05$. However, as often happens when using *A*, the non-significativity of our *A*s could have depended on the relatively small *N*s of our polls more than on their accuracy (Callegaro & Gasperoni, 2008). Thus, we qualitatively analyzed the performances of the three polls, without taking into consideration the non-significativity of their distortion. As a whole, the IAT and voting intention were the two variables which best approximated the official results, without much difference between them, even if with the IAT 11.5% of the participants were unclassifiable because of their performance, while using voting intention nearly 40% of the sample was unclassifiable, because this high percentage could not or did not want to express a voting intention. Had we used the explicit judgments we could classify more than 96% of respondents; however, the prediction we could make would have been rather unsatisfactory. In conclusion predictions based on the IAT were substantially analogous to those based on voting intention and not worse (and, if

[5] *A* is a measure of the predictive accuracy (A) of an election poll which allows to examine both the poll's accuracy and its bias. *A* is computed as the natural log of the odds ratio of the results of the poll and of the Election, using the formula $A = \ln[(l/r)/(L/R)]$, where *l* and *r* are the number (or the percentage) of the poll's respondents respectively in favor of the left- and for the right-wing coalition, while *L* and *R* are the number (or the percentage) of voters who respectively voted for the left- or the right-wing coalition. It is possible to compute its variance, using the formula $\text{Variance}(A) = 1/(n*l*r)$, where *n* is the number or respondents in favor of the left- or of the right-wing coalition, *l* is the proportion of respondents in favor of the left-wing coalition, and *r* is the proportion of respondents in favor of the right-wing coalition, with $l + r = 1$. Based on *A*'s variance, it is possible to compute *A*'s standard error, and thus the significance of the deviation of *A* from 0 by constructing a confidence interval around 0, which is *A*'s expected value in the absence of bias. If *A*'s estimate will fall within such interval the poll will be considered as not significantly biased. A significantly above 0 *A* would show the poll to be biased in favor of the left-wing coalition, while a significantly below 0 *A* would show the poll to be biased in favor of the right-wing coalition. For the statistical details, see Martin et al. (2005).

anything, slightly closer to the observed electoral result) as compared to the predictions based on explicit attitudes; moreover, they were probably more stable than those based on voting intention, being based on a larger quota of respondents.

Was the IAT an Effective Predictor of Individual Voting Behavior?

In order to pursue our second specific goal, we compared the dissociative, the additive, and the interactive models performing a hierarchic logistic regression aimed at predicting the content of our participants' voting behavior using voting intention at step 1 and adding explicit attitude at step 2. At step 3 we added the IAT, making our HP2a and HP2b compete: The data would have been consistent with the dissociative model and with our HP2a if the IAT wouldn't have added predictive power to the model. On the contrary, they would have been consistent with the additive model and with our HP2b if the IAT would have added predictive power to the model. Finally, we added the interaction between explicit and implicit attitude at step 4. The data would have been consistent with our HP3 if inconsistency between explicit and implicit attitude would have exerted no influence on the content of the vote cast by our participants. As we wanted to work on the whole sample, we recoded voting intention into three dummies, respectively assessing: (a) expressing vs. not expressing a voting intention in favor of the left-wing coalition; (b) expressing vs. not expressing a voting intention in favor of the right-wing coalition; and (c) being vs. not being a reticent participant (i.e. a respondent who did not want to express his/her voting intention). We used being vs. not being an undecided participant (i.e. a respondent who could not express his/her voting intention) as reference category.

Table 6 shows that in all of our steps the voting intentions in favor of the left and of the right were the most effective predictors of the vote. Adding at step 2 the explicit attitudes significantly improved the fit of the model. Consistent with the additive model (HP2b), and contrary to the dissociative model (HP2a), the same held true when we added the IAT at step

3, even if the significance of the improvement was rather low. Finally, consistent with our HP3, the interaction between explicit and implicit attitudes, which measured their consistency, did not significantly influence our dependent variable.

Next, we performed three hierarchic logistic regressions analyzing the influence exerted by consistency between explicit and implicit attitudes on three dependent variables: (a) the dummy expressing being (= 1) vs. not being (= 0) an undecided participant in the pre-electoral survey; (b) the moment in which our participants decided how to behave on Election Day (we assigned the code 0 to participants who decided how to behave on Election Day at least 7 days before the Election, and the code 1 to participants who took their decision about how to behave less than 7 days before the Election Day; thus, the dependent variable expressed a delayed decision); and (c) the probability of actually casting a vote (we assigned the code 0 to participants who did not vote, and code 1 to those who actually voted).[6]

Table 7 shows the results of the first analysis. Consistent with our HP4, neither explicit nor implicit attitudes influenced the probability of being an undecided participant, while a positive interaction between the two attitudes negatively influenced it. In other words, those who where characterized by congruence between implicit and explicit attitudes had a higher probability to have already made up an intention when they participated in the pre-electoral interview.

Substantially consistent with HP5, undecided respondents took a longer time to make up their choice when their explicit and implicit attitudes were inconsistent. Indeed, Table 8 shows that the criterion of taking a decision more or less than 7 days before the election was not related to explicit and implicit attitudes taken separately, but a marginal interaction between explicit and implicit attitudes emerged (p = .059), which indicated that the higher

[6] In these regressions we did not enter voting intention among our predictors, as we were interested in analyzing the effect exerted by the interplay of explicit and implicit attitudes on the probability of actually casting a vote (*any* vote) and and not on the probability of casting a vote in favor of a specific coalition. However, parallel analyses performed entering voting intention also brought to substantially analogous results. Their results are available upon request.

the inconsistency, the higher the probability of the decision being taken nearer to the election day.

Finally, Table 9 shows that in the logistic regression with voting vs. abstaining as criterion, exactly the same pattern of results emerged, indicating a higher probability of abstention in those showing inconsistent explicit and implicit attitudes. Contrary to HP6, however, this pattern was not significant (p = .290). Given the numerosity of the undecided sub-sample (n = 362) this result was hardly related to a lack of power of the analysis. Hence, as a whole, the hypothesis of a synergistic effect of the congruence between explicit and implicit attitudes on the process of decision making found only partial support. Results from the first and from the second logistic regressions indicated that the process of decision making was deferred by undecided participants with incongruent attitudes, but results from the third logistic regression suggested that the incongruence caused only a delay, not a refraining from the decision.

Discussion

The IAT is one of the most fascinating research instruments developed by social cognitive researchers during the last decade. During its first eleven years of life, it proved to be robust (Nosek, Greenwald, & Banaji, 2007), versatile, and valid (Greenwald et al., 2008) and was widely used in research. Due to its remarkable characteristics, it might be of interest in many fields of applied psychology as well. In the present paper, we investigated its usefulness in electoral forecasts. This issue was decomposed into three related questions. First, can the IAT enhance the quality of the forecasts made by pollsters in pre-electoral research? Second, does it add incremental validity to the predictions of the elections results? And third, what is the interplay between implicit and explicit attitudes in influencing voting behavior? A fourth, more general, question concerned the validity of the IAT when it is taken out of the laboratory and administered face-to face in a field research, on a representative

sample of the population—i.e. on a sample which is much less educated than those usually analyzed in psychological research.

We aimed to answer these questions by analyzing a wide, representative sample of the Italian population. We were able to perform our analyses due to the availability of a large grant given to Itanes by the Italian University Ministry, which made a large-scale administration of the IAT possible. The fact that—contrary to most of the pre-electoral polls—the left-wing coalition won the election with a very narrow margin made our research even more intriguing.

Let us start from our general question. Like those obtained in previous research performed on convenience samples (Arcuri et al., 2008; Friese, Bluemke, & Wänke, 2007; Knutson et al., 2006; Nosek, Banaji, & Greenwald, 2002), our results showed the existence of a significant, consistent relation between the IAT and the voting behavior of the people who declared their voting intention before the election, and—more interestingly—that of the people who did not express a voting intention before the election (either because reticent or undecided). It was the first time that the IAT's external validity was evidenced in a representative sample, face-to face inteviewed. However, the relations between voting behavior on the one hand and voting intention and explicit political attitudes on the other hand were much stronger than those linking the IAT and voting behavior.

To answer our first specific question, we compared the predictive power of the IAT scores and those of two much easier-to-assess variables: the voting intention and the explicit judgments expressed on the main leaders of the two coalitions who competed in the 2006 Italian National Election. Our data showed that none of the three polls we could use to forecast the Election's result was significantly biased in favor of the left- or of the right-wing coalition. However, their performances were not qualitatively equal: The voting intention and the IAT had nearly the same predictive power of the Election official results, and they

were much more effective than explicit attitudes on the main Italian political leaders. This result suggests to researchers interested in predicting the results of National Elections that at present it is more advisable to explore the participants' voting intention, than to use the time- and resource-consuming IAT to gather their implicit attitudes.

However, our research moved one step further, analyzing the interplay between explicit and implicit attitudes in influencing actual voting behavior. On the one hand, as concerns the content of the voting behavior, we showed that the IAT added a significant, though modest, incremental predictive power to the explicit attitudes, so far our results supported the additive model of prediction of political behavior. On the other hand, contrary to the interaction model—even if it significantly predicted the probability of being undecided in the pre-electoral survey and that of delaying the decision to the last possible moment—consistency between implicit and explicit political attitudes did not significantly predict the probability of of casting a valid vote. Hence, the hypothesis of a synergistic effect of the congruence between explicit and implicit attitudes on the process of decision making found only partial support: Information on the interplay between explicit and implicit attitudes did not help to predict *whether* the individual actually cast their vote or did not (even though it helped predictig *when* the decision was eventually taken).

Thus, as a whole, we could not effectively link consistency between explicit and implicit attitudes (measured in the pre-electoral poll) and the decision to cast vs. not to cast a vote (measured in the post-electoral poll). However, we feel we should not discard the interaction model yet. Indeed, our data did not allow us to analyze what happened, in our undecided participants' mind, between the pre- and the post-electoral poll. Lau and Redlawsk (1997, 2001) recently developed the *dynamic information board*, a technique which, simulating a real-world election campaign, traces participants' political decision-making processes while they happen. Using such a research tool, Redlawsk (2004)

showed that voters adopt different strategies of political decision-making, dependent on the campaign environment (mainly in terms of richness of the information environment) and on their individual characteristics (mainly in terms of motivation and cognitive ability). It is plausible that the relation between the explicit*implicit attitudes interaction and the final decision of casting vs. not casting a vote could depend on the decision making strategy used by participants. Among them, the distinction between compensatory (i.e. systematic) and noncompensatory (i.e. non systematic) strategies seems plausibly relevant. Our data did not allow us to analyze the strategy our participants used to take their voting decision. Thus, before closing the book on the interactive model, research based on the integration of such literature with that on the interplay between explicit and implicit attitudes would be welcome.

One could argue that our research had three limits. First, when comparing the predictive validity of two measures, it is often advisable to counterbalance the order of their administration, to control for the possible influences of one variable on the other. For practical reasons, in the present study participants first took part in a long interview, devoted to analyzing a number of social attitudes and political opinions and then, *after declaring their voting intention*, they performed the IAT. Hence, the order of presentation of the explicit and the implicit political measures was *not* counterbalanced. Would the results have been different, if the other order of administration (i.e., IAT first, followed by the interview) had been used? In other words, might the in-depth interview have diminished the predictive value of the IAT?

Recent research into the malleability of attitudes and implicit beliefs (Blair, 2002; Mitchell, Nosek, & Banaji, 2003) suggests that the expression of implicit associations could be influenced by previously activated cognitive processes and by the context. On the one hand, one could argue that the questions asked by the interviewers, prompting the activation

of one's knowledge structures when expressing one's implicit attitudes, positively influenced the strength of the relation between the IAT scores and the voting behavior. However, on the other hand one could argue that the traditional interview which preceded the IAT touched on a number of aspects of the cognitive representation of politics which were irrelevant both for the subsequent expression of implicit political attitudes and for the subsequent electoral choice. Thus, the traditional interview could have negatively influenced the predictive validity of the voting behavior shown by the IAT.

Nonetheless, recent research has shown that the order of presentation of the explicit and the implicit tasks exerts minimal or even null influences on the IAT scores (see Egloff & Schmukle, 2002, Study 2; Hofmann, Gawronski, Gschwendner, Le, & Schmidt, 2005; Nosek et al., 2005). Nosek, Greenwald, and Banaji (2007) concluded that "a reasonable procedural guideline is to counterbalance order of IAT and self-report measures in the absence of reasons for just using a single order" (p. 273). However, in our opinion the research cited above and the strength and the consistency of our data made it plausible that even by using this strategy one would obtain results similar to ours. As a matter of fact, in a replication of our research recently performed on a small Italian sample ($N = 50$) taking this design variable into consideration, the order of presentation of the explicit and the implicit tasks did not significantly influence *D* (Borra, 2008).

The second limit of our research was that we presented our participants the IAT using a non-standard administration procedure, introducing the pleasant-unpleasant dichotomy instead of that counterposing the left- and the right-wing objects in the first blocks of trials. Moreover, in order to keep the "right wing" and "left-wing" meaning of the coalitions congruent with response mode to avoid incongruences in response mode (which would have been caused by the request to classify "right-wing" stimuli pressing the left key, and vice versa) we switched the sides of the valence concepts in the fourth step of the test, when

usually the target concepts are switched at that point. These inversions may have determined the very slight order effects we detected. According to Tony Greenwald, who non-anonimously reviewed the first version of this article, our procedure likely perturbed results no more than mildly, and the correction we used for order effects was appropriate. As a matter of fact, a replication of our research, performed on a small Italian sample ($N = 41$) comparing the standard IAT procedure and that we used, showed that this design variable did not significantly influence *D* (Pittarello, 2008).

Moreover, in our analyses we used our participants' self reports on the vote they casted as dependent variable, even if research shows that such self-reports may be untrue of the actual voting intention and vote cast, mainly because some participants who feel to hold a minoritarian position prefer to give insincere answers, aimed at making them appear as part of the majority (Noelle-Neumann, 1993). However, we believe that this problem was not particularly serious, as the left-wing and the right-wing coalitions got nearly the same percentage of votes. Indeed, politological research shows that distortions of post-electoral self-reports on one's own vote are particularly relevant when a party or a coalition easily won the Election, while participants do not show strong tendency to lie in post-electoral surveys if elections end with a tie (Wright, 1993). Nonetheless, we cannot argue that *no distortion* at all was at work. This a typical, inevitable limit of all the research performed trying to predict self-reported behaviors (Schwartz, 1999).

Another factor possibly distorting our results was that voting intention, explicit attitude, and voting behavior were all measured through self-report, while the IAT is an implicit measure based on automatic processes. Thus, this method commonality might have inflated the apparent predictive validity of pre-election self-report measures, and not that of the IAT. However, the results we obtained were pretty consistent both when using as criterion the Election official outcome—which was, by definition, not flawed by this

possible distortion—and our participants' self-reported voting behavior. Nonetheless, since in the political context it is not possible to directly observe and measure individual behaviors, replications of our research performed in other contexts of deliberate choice, in which the individual behavior may be directly observed, will be obviously welcome.

To conclude, the present work provided substantial external validity to the IAT for the measurement of political attitudes. We could show that it has predictive validity and a modest incremental validity in the prediction of voting behavior in a large and representative sample of voters, supporting the additive model of prediction of behavior. However, our results showed we should not suggest pollster to use it to forecast electoral results, as the ratio between its costs and its benefits is far from satisfactory. Moreover, we could show that the simultaneous use of implicit and explicit measures can help shed light on the process of political decision making. In particular, from the present data it emerged that the interplay between implicit and explicit political attitudes can delay (when inconsistent) or facilitate (when consistent) the decision; importantly, however, the present data suggested that the final behavior (i.e., going to the ballot vs. abstaining from the vote, and the content of the casted ballot) is not influenced by the interplay between implicit and explicit political preferences.

References

Arcuri, L., Castelli, L., Galdi, S., Zogmaister, C., & Amadori, A. (2008). Predicting the vote: Implicit attitudes as predictors of the future behavior of decided and undecided voters. *Political Psychology*, 29, 369-387.

Best, S. J., & Krueger, B. (2002). New approaches to assessing opinion: The prospects for electronic mail surveys. *International Journal of Public Opinion Research, 14*, 73-92.

Blair, I. V. (2002). The malleability of automatic stereotypes and prejudice. *Personality and Social Psychology Review, 6*, 242-261.

Blanton H., & Jaccard, J. (2006). Arbitrary metrics in psychology. *American Psychologist, 61*, 27-41.

Borra, L. (2008). L'ordine di somministrazione di IAT e questionario self-report può influenzare i risultati dello IAT? [Does the order of administration of the IAT and of the self-report questionnaire influence the IAT's results?]. Unpublished dissertation, University of Torino, Italy.

Callegaro, M., & Gasperoni, G. (2008). Accuracy of pre-election polls for the 2006 Italian parliamentary elections: Too close to call. *International Journal of Public Opinion Research, 20*, 148-170.

Durand, C., Blais, A., & Larochelle, M. (2004). The polls in the 2002 French presidential election: An autopsy. *Public Opinion Quarterly, 68*, 602-622.

Egloff, B., & Schmukle, S. C. (2002). Predictive validity of an implicit association test for assessing anxiety. *Journal of Personality and Social Psychology, 83*, 1441-1455.

Fazio, R. H. (2007). Attitudes as object-evaluation associations of varying strength. *Social Cognition, 25*, 603-637.

Fazio, R. H., & Olson, M. A. (2003). Implicit measures in social cognition research: Their meaning and use. *Annual Review of Psychology, 54*, 297-327.

Friese, M, Bluemke, M, & Wänke, M. (2007). Predicting voting behavior with implicit attitude measures: The 2002 German parliamentary election. *Experimental Psychology, 54*, 247-255.

Galdi, S., Arcuri, L., & Gawronski, B. (2008). Automatic mental associations predict future choiches of undecided decision-makers. *Science, 321,* 1100-1102.

Gasperoni, G., & Callegaro, M. (2008). Un miglioramento immeritato? La capacità predittiva dei sondaggi preelettorali e le elezioni politiche del 2008 [An undeserved improvement? Pre-electoral polls predictive power in the Italian 2008 National Election]. *Polis, 22,* 483-504.

Greenwald, A. G., McGhee, D., & Schwartz, L. K. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology, 74*, 1464-1480.

Greenwald, A. G., & Nosek, B. A. (2008). Attitudinal dissociation: What does it mean? In R. E. Petty, R. H. Fazio, & P. Brinol (Eds.), *Attitudes: Insights from the new implicit measures* (pp. 65-82). Hillsdale, NJ: Erlbaum.

Greenwald, A. G., Nosek, B. A., & Banaji, M. R. (2003). Understanding and using the Implicit Association Test: An improved scoring algorithm. *Journal of Personality and Social Psychology, 85*, 187-216.

Greenwald, A. G., Nosek, B. A., & Sriram, N. (2006). Consequential validity of the Implicit Association Test: Comment on the article by Blanton and Jaccard. *American Psychologist, 61*, 56-61.

Greenwald, A. G., Poehlman, T. A., Uhlmann, E., & Banaji, M. R. (in press). Understanding and using the Implicit Association Test: III. Meta-analysis of predictive validity. *Journal of Personality and Social Psychology*.

Hofmann, W. Gawronski, B., Gschwendner, T., Le, H., & Schmitt, M. (2005). A meta-analysis on the correlation between the Implicit Association Test and explicit self-report measures. *Personality and Social Psychology Bulletin, 31,* 1369-1385.

Knutson, K. M., Wood, J. N., Spampinato, M. V., & Grafman, J. (2006). Politics on the brain: An fMRI investigation. *Social Neuroscience, 1,* 25-40.

Lau, R. R., & Redlawsk, D. (1997). Voting correctly. *American Political Science Review, 91,* 585-599.

Lau, R. R., & Redlawsk, D. (2001). Advantages and disadvantages of cognitive heuristics in political decision-making. *American Journal of Political Science, 45,* 951-971.

Maass, A., Castelli, L., & Arcuri, L. (2000). Measuring prejudice: Implicit versus explicit techniques. In R. Brown & D. Capozza (Eds.), *Social identity processes: Trends in theory and research* (pp. 96-116) London: Sage.

Martin, E. A., Traugott, M. W., & Kennedy, C. (2005). A review and proposal for a new measure of poll accuracy. *Public Opinion Quarterly, 69,* 342-369.

Mitchell, J. P., Nosek, B. A., & Banaji, M. R. (2003). Contextual variations in implicit evaluation. *Journal of Experimental Psychology: General, 132,* 455-469.

Noelle-Neumann, E. (1993). *The spiral of silence, our social skin*. Chicago, IL: University of Chicago Press.

Nosek, B. A., Banaji, M. R., & Greenwald, A. G. (2002). Harvesting implicit group attitudes and beliefs from a demonstration website. *Group Dynamics, 6,* 101–115.

Nosek, B. A., Greenwald, A. G., & Banaji, M. R. (2005). Understanding and using the Implicit Association Test: II. Methodological issues. *Personality and Social Psychology Bulletin, 31,* 166-180.

Nosek, B. A., Greenwald, A. G., & Banaji, M. R. (2007). The Implicit Association Test at age 7: A methodological and conceptual review. In J. A. Bargh (Ed.), *Social*

psychology and the unconscious: The automaticity of higher mental processes (pp. 265-292). New York: Psychology Press.

Perugini, M. (2005). Predictive models of implicit and explicit attitudes. *British Journal of Social Psychology*, *44*, 29-45.

Pittarello, S. (2008). Il test empirico di una modalità di somministrazione alternativa dello IAT [The empirical test of an alternative way of administering the IAT]. Unpublished disserattion, University of Torino, Italy.

Redlawsk, D. (2004). What voters do: Information search during election campaigns. *Political Psychology, 25*, 595-610.

Sani, G. (2006). *Vincere la campagna, perdere le elezioni* [Losing the election after winning the campaign]. In Itanes (Ed.), *Dov'è la vittoria? Il voto del 2006 raccontato dagli italiani* [Where is the victory? The 2006 Italian National Election in the words of the Italians] (pp. 49-60). Bologna: Il Mulino.

Schonlau, M., Zapert, K., Simon, L. P., Sanstad, K. H., Marcus, S. M., Adams, J., et al. (2004). A comparison between responses from a propensity-weighted web survey and an identical RDD survey. *Social Science Computer Review, 22*, 128-138.

Schwarz, N. (1999). Self-reported: How the questions shape the answers. *American Psychologist, 54*, 93-105.

Sriram, N., & Greenwald, A. G. (submitted). The Brief Implicit Association test. Retrieved February 15, 2008 from http://faculty.washington.edu/agg/pdf/SriramGwald.BriefIAT.7Apr08.pdf

Smith, E. R., & DeCoster, J. (2000). Dual process models in social and cognitive psychology: Conceptual integration and links to underlying memory systems. *Personality and Social Psychology Review, 4*, 108-131.

Strack, F., & Deutsch, R. (2004). Reflective and impulsive determinants of social behavior. *Personality and Social Psychology Review, 83,* 220-247.

Visser, P. S., Krosnick, J. A. Marquette, J., & Curtin, M. (2000). Improving election forecasting: Allocation of undecided respondents, indentification of likely voters, and response order effects. In M. W. Traugott (Ed.), *Election polls, the news media, and democracy* (pp. 224-260). New York: Chatham House Publishers.

Wilson, T. D., Lindsey, S. & Schooler, T. Y. (2000). A model of dual attitudes. *Psychological Review, 107,* 101-126.

Wright, G. C. (1993). Errors in measuring vote choice in the National Election Studies, 1952-1988. *American Journal of Political Science, 37,* 291-316.

Zogmaister, C., & Castelli, L. (2006). La misurazione di costrutti impliciti attraverso l'Implicit Association Test [Measuring implicit constructs using the Implicit Association Test]. *Psicologia Sociale, 1,* 65-94.

Table I.

Research Hypotheses

Number of the hypothesis	Content of the hypothesis
HP1	The IAT significantly correlates with participants' voting behavior
HP2a	The IAT does not add predictive power to models predicting voting behavior using explicit attitudes
HP2b	The IAT does adds predictive power to models predicting voting behavior using explicit attitudes
HP3	The interaction between the IAT and the explicit attitudes does not influence the content of the voting behavior
HP4	Consistency between the IAT and the explicit attitudes fosters the probability of having made up one's decision about how to vote in the pre-electoral survey, while voting intention and explicit attitudes do not
HP5	Among undecided voters, consistency between the IAT and the explicit attitudes fosters the probability of actually voting, while explicit attitudes do not
HP6	Among undecided voters, consistency between the IAT and the explicit attitudes fosters the probability of a fast decision about how to vote, while explicit attitudes do not

Table II.

IAT Block Sequence

Block	Instructions	Stimuli associated to the "E" key	Stimuli associated to the "I" key	Number of trials
1. Practice block: valence of the words	Press the "E" key for pleasant words and the "I" key for unpleasant words	Pleasant words (caress, rainbow, love, happy)	Unpleasant words (rotten, death, vomit, stink)	24
2. Practice block: parties	Press the "E" key for left-wing parties and the "I" key for right-wing parties	Left-wing parties (Rifondazione comunista, Democratici di sinistra, Margherita, Verdi)	Right-wing parties (Forza Italia, Alleanza nazionale, Lega Nord, UDC)	24
3. Critical block: association between left-wing parties and pleasant words	Press the "E" key for left-wing parties and for pleasant words; press the "I" key for right-wing parties and for unpleasant words	Left-wing parties and pleasant words (e.g. Rifondazione comunista, caress)	Right-wing parties and unpleasant words (e.g. Forza Italia, rotten)	60
4. Practice block: valence of the words	Press the "E" key for unpleasant words and the "I" key for pleasant words (i.e. answers keyed contrary to block 1)	Unpleasant words (rotten, death, vomit, stink)	Pleasant words (caress, rainbow, love, happy)	48
5. Critical block: association	Press the "E" key for left-wing parties and	Left-wing parties and unpleasant	Right-wing parties and	60

between right-wing parties and pleasant words	for unpleasant words; press the “I” key for right-wing parties and for pleasant words	words (e.g. Rifondazione comunista, rotten)	pleasant words (e.g. Forza Italia, caress)

Note. The order of the practice blocks and of the critical tasks was counterbalanced among participants, as fully described in the text. In the table we present the “Parties-IAT” in the “Left-wing positive” version.

Table III.

Proportion of Valid Cases in the Critical Variables

Variable	Frequency of valid cases	Percentage of valid cases
Voting intention	831	60.1
Explicit attitude	1,225	87.8
Implicit attitude	1,244	89.4
Voting behavior	1,078	76.8
Time of decision about how to vote	1,237	89.8
Total	1,377	100.0

Table IV.

Correlations between Voting Behavior, Voting Intention, Implicit Attitude, and Explicit Attitude

	1	2	3	4
All participants who voted				
1. Voting behavior	ϕ = 1.00 *N* = 1,057	ϕ = .93*** *N* = 743	r_{pb} = .51*** *N* = 952	r_{pb} = .84*** *N* = 984
2. Voting intention		ϕ = 1.00 *N* = 827	r_{pb} = .56*** *N* = 763	r_{pb} = .82*** *N* = 780
3. Implicit attitude			*r* = 1.00 *N* = 1,219	*r* = .50*** *N* = 1,085
4. Explicit attitude				*r* = 1.00 *N* = 1,208
Participants who voted and expressed their voting intention				
1. Voting behavior	*r* = 1.00 *N* = 743	ϕ = .93*** *N* = 743	r_{pb} = .56*** *N* = 686	r_{pb} = .87*** *N* = 713
2. Voting intention		ϕ = 1.00 *N* = 827	r_{pb} = .56*** *N* = 763	r_{pb} = .82*** *N* = 780
3. Implicit attitude			*r* = 1.00 *N* = 763	*r* = .54*** *N* = 723
4. Explicit attitude				*r* = 1.00 *N* = 780
Reticent participants				
1. Voting behavior	ϕ = 1.00 *N* = 81		r_{pb} = .53*** *N* = 73	r_{pb} =.84*** *N* = 70

3. Implicit attitude			r = 1.00 N = 121	r = .47*** N = 104
4. Explicit attitude				r = 1.00 N = 111
Undecided participants				
1. Voting behavior	ϕ = 1.00 N = 234		r_{pb} = .29*** N = 193	r_{pb} = .75*** N = 200
3. Implicit attitude			r = 1.00 N = 334	r = .31*** N = 258
4. Explicit attitude				r = 1.00 N = 317

Table V.

Post-hoc prediction of the results of the 2006 Italian National Election

	Official result	Prediction using voting intention	Prediction using explicit attitude	Prediction using the IAT
Cdl (right-wing coalition)	49.9%	51.5%	46.0%	48.8%
Unione (left-wing coalition)	50.1%	48.5%	54.0%	51.2%
A		-.06	.16	.05

Table VI.

Efficiency of the Variables Used to Predict the Content of the Vote Cast

	Step 1 (voting intention only)			Step 2 (Model 1 + explicit attitude)			Step 3 (Model 2 + Iat)			Step 4 (Model 3 + consistency between explicit attitude and the IAT)		
	B	E.S.	Exp(B)	B	E.S.	Exp(B)	B	E.S.	Exp(B)	B	E.S.	Exp(B)
Voting intention for the Unione	4.012***	.057	55.264	2.802***	.605	16.482	2.867***	.695	17.579	2.829***	.695	16.924
Voting intention for the CdL	-2.873***	.285	.057	-.753	.467	.470	-.458	.481	.633	-.441	.482	.643
Reticence	.596	.305	1.815	.192	.627	1.212	.316	.660	1.372	.290	.662	1.373
Explicit attitude				1.578***	.174	4.844	1.569***	.179	4.802	1.610***	.194	5.003
Implicit attitude							.609*	.259	1.839	.739*	.312	2.094
Interaction between explicit and implicit attitude										.166	.208	1.181
Constant	.162	.155	1.175	.053	.292	1.054	.065	.296	1.067	.093	.303	1.097

Cox & Snell's pseudo's R^2	.549	.690	.692	.692
Nagelkerke's pseudo's R^2	.737	.926	.929	.929
Percentage of correctly classified cases	86.3	96.1	96.2	96.0
Improvement of the fit of the model		$\Delta(\chi^2(1)) = 336.749$, $p < .001$	$\Delta(\chi^2(1)) = 5.853$, $p < .05$	$\Delta(\chi^2(1)) = .645$, *ns*

Note. * $p < .05$, *** $p < .001$.

Table VII.

Efficiency of the Variables Used to Predict Whether Participants Were Undecided in the Pre-Electoral Survey

	Step 1 (Explicit attitude)			Step 2 (Step 1 + implicit attitude)			Step 3 (Step 2 + consistency between explicit and impliciti attitude)		
	B	E.S.	Exp(B)	B	E.S.	Exp(B)	B	E.S.	Exp(B)
Explicit attitude	-.016	.019	.984	-.022	.022	.975	-.030	.022	.971
Implicit attitude				.039	.081	.635	.022	.084	1.022
Interaction between explicit and implicit attitude							-.132***	.023	.876
Constant	-1.160***	.072	.314	-1.158***	.072	.314	.963***	.077	.382
Cox & Snell's pseudo's R^2	.001			.001			.036		
Nagelkerke's	.001			.001			.054		

pseudo's R^2			
Percentage of correctly classified cases	76.2	76.2	75.8
Improvement of the fit of the model		$\Delta((\chi^2(1)) = .225$, *ns*	$\Delta((\chi^2(1)) = 38.587$, $p < .001$

Note. *** $p < .001$.

Table VIII.

Efficiency of the Variables Used to Predict When Participants Decided How to Behave on Election Day

	Step 1 (Explicit attitude)			Step 2 (Step 1 + implicit attitude)			Step 3 (Step 2 + consistency between explicit and implicit attitude)		
	B	E.S.	Exp(B)	B	E.S.	Exp(B)	B	E.S.	Exp(B)
Explicit attitude	-.008	.053	.992	-.017	.055	.984	-.030	.057	.970
Implicit attitude				.094	.178	1.098	.017	.184	1.017
Interaction between explicit and implicit attitude							-.124†	.066	.884
Constant	-.840***	.147	.432	-.836***	.146	.433	-.771***	.151	.463
Cox & Snell's pseudo's R^2	.000			.001			.018		
Nagelkerke's pseudo's R^2	.000			.002			.126		
Percentage of correctly classified cases	69.9			69.9			70.1		

Improvement of the fit of the model		$\Delta((\chi^2(1)) = .277$, *ns*	$\Delta((\chi^2(1)) = 3.785$, $p = .052$

Note. Analysis performed among undecided participants only. *** $p < .001$. † $p < .10$.

Table IX.

Efficiency of the Variables Used to Predict if Participants Actually Voted

	Step 1 (Explicit attitude)			Step 2 (Step 1 + implicit attitude)			Step 3 (Step 2 + consistency between explicit and implicit attitude)		
	B	E.S.	Exp(B)	B	E.S.	Exp(B)	B	E.S.	Exp(B)
Explicit attitude	-.011	.049	.989	-.008	.051	.992	-.007	.052	.993
Iat				-.034	.159	.966	-.019	.161	.904
Interaction between explicit attitude and the IAT							.055	.052	1.057
Constant	.625***	.131	1.869	.625***	.132	1.868	.589***	.135	1.802
Cox & Snell's pseudo's R^2	.000			.000			.005		
Nagelkerke's pseudo's R^2	.000			.001			.007		
Percentage of correctly	65.1			65.1			64.9		

classified cases			
Improvement of the fit of the model		$\Delta((\chi^2(1)) = .047$, *ns*	$\Delta((\chi^2(1)) = 1.163$, *ns*

Note. Analysis performed among undecided participants only. *** $p < .001$.